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On the thermodynamic equilibrium in the 3He-aerogel system at low temperatures

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Abstract

A new method for studying the processes of the establishment of the thermodynamic equilibrium in the adsorbed 3He layers in highly porous media has been proposed. Using this method, the thermalization of adsorbed 3He on silica aerogel at a temperature of 1. 5 K has been studied. The process of the establishment of the thermodynamic equilibrium has been controlled by measuring the pressure in an experimental cell, the amplitude of the NMR signal, and the nuclear spin-spin and spin-lattice relaxation times of adsorbed 3He. It has been shown that the establishment of the thermodynamic equilibrium in the adsorbed 3He-aerogel system is characterized by a time of 26 min. © 2011 Pleiades Publishing, Ltd.

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